13544

003054

Chemical:	**2-(1-Methyl-2-(4-phenoxyphenoxy)ethoxy)p**
PC Code:	**129032**
HED File Code	**11000 Chemistry Reviews**
Memo Date:	**10/04/99**
File ID:	**DPD258407**
Accession Number:	**412-01-0084**

HED Records Reference Center
01/19/2001

Image 7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OPP OFFICIAL RECORD
HEALTH EFFECTS DIVISION
SCIENTIFIC DATA REVIEWS
EPA SERIES 361

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES, AND
TOXIC SUBSTANCES

DATE: 04-OCT-1999

SUBJECT: PP# 6H05748. Pyriproxyfen (NYLAR®) in Food Handling Establishments. Evaluation of Residue Data and Analytical Methods. Chemical#: 129032. Caswell#: 295. DP Barcode: D258407. MRID Nos. 439269-01 thru 439269-07.

FROM: William H. Donovan, Ph.D., Chemist William H. Donovan
Registration Action Branch 1 (RAB1)
Health Effects Division (7509C)

THRU: George F. Kramer, Ph.D., Chemist
Melba Morrow, D.V.M., Branch Senior Scientist
Registration Action Branch 1 (RAB1)
HED (7509C)

TO: Arnold Layne/Joseph Tavano, PM Team 03
Registration Division (7505C)

INTRODUCTION

McLaughlin Gormley King (MGK) Company has submitted a petition for the use of pyriproxyfen [2-[1-methyl-2-(4-phenoxyphenoxy)ethoxy]pyridine] (Nylar®) in food handling establishments, primarily for cockroach control. Although the aerosol formulations labeled for the proposed uses contain multiple active ingredients, this action only addresses pyriproxyfen. Specifically, MGK Company requests that a tolerance of 0.5 ppm be established for pyriproxyfen residues in or on the following types of stored food commodities: fruits, meats, sugar, vegetables, flours, candy, dairy, and baked goods.
Moreover, MGK requests approval for the application of pyriproxyfen in food handling establishments and in food preparation areas in accordance with the following conditions:
1) Application shall be limited to a general surface and spot and/or crack and crevice treatment in food handling establishments where food is stored and prepared.
2) General surface application may be used when exposed food is covered or removed from the area being treated. Fogging, spot, or crack and crevice application may be used provided exposed food is covered or removed from the area being treated prior to application.
3) All pyriproxyfen-containing products will be used as directed by the appropriate label instructions.

Recently, permanent tolerances for parent pyriproxyfen residues have been established in or on citrus fruits, fruiting vegetables (except cucurbits), and tree nuts (PP#8F05022, W. Donovan, W. Dykstra, and M. Christian, 02-AUG-1999); in or on pome fruits and walnuts (PP#7F04882, W. Donovan, W. Dykstra, and M. Christian, 30-DEC-1998); and in or on cotton (PP#6F04737, W. Donovan, W. Dykstra, and B. Tarplee, 27-FEB-1998).

Executive Summary of Chemistry Deficiencies

- Revised Section B.
- Revised Section F.
- Agency validation of analytical method.
- Storage stability data.

CONCLUSIONS

1. The proposed use directions are not adequate. The aerosol labels should be amended to specify minimum retreatment intervals (RTIs). A revised Section B should be submitted.

2. A conclusion on the adequacy of the methods for enforcement of permanent tolerances will be withheld pending a satisfactory agency petition method validation of the GLC/NPD method for meat and the HPLC/UV method for the other food commodities.

3. The available data do not support the proposed tolerance of 0.5 ppm for residues of pyriproxyfen in food handling establishments. The appropriate tolerance level for pyriproxyfen in food handling establishments is 0.1 ppm. A revised Section F reflecting this change is needed.

4. The registrant has not provided data to demonstrate the stability of pyriproxyfen residues in/on food commodities in frozen storage. Data to cover the treatment-to-analysis interval is needed.

RECOMMENDATIONS

RAB1 concludes that the available residue chemistry data *do not* support establishment of permanent tolerances for pyriproxyfen use in food handling establishments for the reasons given in conclusions 1 - 4.

DETAILED CONSIDERATIONS

OPPTS GLN 860.1200: Directions for Use

The petition limits applications to a general surface and spot and/or crack and crevice treatment in food handling establishments where food is stored and prepared. General surface application

may be used when exposed food is covered or removed from the area being treated. Fogging, spot, or crack and crevice application may be used provided exposed food is covered or removed from the area being treated prior to application.

MGK Company submitted labels for the following four end-use products containing pyriproxyfen:

1. NYLAR® Total Release Fogger 2620. This product contains 0.100% w/w pyriproxyfen and is packaged as a 6 ounce aerosol for treating 6000 cubic feet in apartments, attics, basements, boats, cabins, campers, closed porches, condominiums, dormitories, drive-ins, drugstores, factories, food plants, garages, homes, hospitals, hotels, institutions, kennels, kitchens, motels, nursing homes, office buildings, other public buildings, pet grooming parlors, pet sleeping areas, railroad cars, restaurants, rooms, schools, ships, storage areas, supermarkets, theaters, trailers, tree houses, trucks, verandas, warehouses, and zoos. Do not use in food areas of food handling establishments, restaurants, or other areas where food is commercially prepared or processed. Not for use in USDA meat and poultry plants. The product is labeled for residual control of fleas for 7 months. The 7 month claim is not made for other target pests.

2. NYLAR® 10EC. This product contains 10.00% w/w pyriproxyfen and is an emulsifiable concentrate labeled for non-food areas of homes, restaurants, food processing plants, schools, warehouses, office buildings, apartment buildings, theaters, garages, hotels, motels, canneries, bottling plants, kennels, hospitals, automobiles, buses, boats, ship cabins, trucks, boxcars, and ship cargo holds. The product may be packaged in small bottles as 8.5 mL are used per gallon of water for cockroach control. The label claim is for 120 days of cockroach control. One gallon of spray is designed to cover 1000 square feet of surface area; the label allows reapplications every 120 days to maintain continuous cockroach control.

3. EVERCIDE® NYLAR® Total Release Aerosol 2644. This product contains 0.60% w/w pyriproxyfen and is packaged in a 6 ounce (net weight) aerosol can for treating 6000 cubic feet in apartments, attics, basements, boats, cabins, campers, closed porches, condominiums, dormitories, drive-ins, drugstores, factories, food plants, garages, homes, hospitals, hotels, institutions, kennels, kitchens, motels, nursing homes, office buildings, other public buildings, pet grooming parlors, pet sleeping areas, railroad cars, restaurants, rooms, schools, ships, storage areas, supermarkets, theaters, trailers, tree houses, trucks, verandas, warehouses, and zoos. Do not use in food areas of food handling establishments, restaurants, or other areas where food is commercially prepared or processed. Not for use in USDA meat and poultry plants. This product is labeled for residual control of fleas for 7 months and cockroaches for 6 months. No residual efficacy is claimed for the other target pests.

4. NYLAR® Concentrate 2607. This product contains 1.30% w/w pyriproxyfen and is an emulsifiable concentrate product labeled for homes, hotels, motels, institutions, schools, theaters, and many other use sites for the control of fleas and cockroaches only. The use rate is 2 ounces of product per gallon of water. With 6 month cockroach control and 7 month flea control, repeat

treatments would be called for after 6 or 7 months. Repeat as necessary.

Conclusion: The aerosol labels should specify minimum retreatment intervals. **A revised Section B is needed.**

OPPTS GLN 860.1340: Residue Analytical Method

MRID 439269-01: Validation of Nylar® Analytical Method. BTC Study No. P0594011.

Biological Test Center (BTC) conducted an Independent Laboratory Validation (ILV) of the proposed enforcement method for tolerances of pyriproxyfen on four representative foods using HPLC with UV detection. Sugar, flour, lettuce and butter were selected to represent high sugar content foods, dry foods, high water content foods, and fatty foods, respectively. The limit of quantitation (LOQ) was 0.1 ppm for all foods except butter where it was 0.5 ppm. Sugar, flour, and lettuce samples were fortified at 0.1 and 0.5 ppm. Average recoveries ranged from 89 - 97% for these food samples. Butter was fortified at 0.5 and 2.4 ppm and gave an average recovery of 68%. Some modifications to the analytical method were necessary for the butter samples. With incorporation of these modifications, RAB1 considers the ILV of the pyriproxyfen (Nylar®) analytical method for food commodities to be successful. Agency validation of this method has been requested (D258509, W. Donovan, 12-AUG-1999). Previously, the Agency has successfully validated GC methods for pyriproxyfen on cotton seed (A.J. Krynitsky, 27-MAR-1997), and on pome fruits, citrus fruits, fruiting vegetables, and tree nuts (A.J. Krynitsky and D.M. Swineford, 21-JUN-1999).

OPPTS GLN 860.1360: Multiresidue Method

Valent submitted data from a study performed by Corning Hazleton Inc. (MRID # 44036926) describing the testing of pyriproxyfen through the Food and Drug Administration (FDA) Multiresidue Methods Protocols A, C, D, E, and F found in the Pesticide Analytical Manual Volume I (PAM I), Appendix II. This study was previously reviewed in a memo dated 06-MAY-1997 (D228556, J. Garbus & R.W. Cook). Pyriproxyfen was recovered from fortified apple and cotton samples through protocols A, C, D, E, and F. The metabolite PYPAC was tested with protocols A, B, C, and D. The multiresidue methods will serve as confirmatory methods for residues of pyriproxyfen. The multiresidue recovery data were sent to the FDA for inclusion in PAM I (R.W. Cook, 24-JAN-1997).

OPPTS GLN 830: Product Chemistry

MRID 439269-02: Test Material Characterization and Stability of X-4129-91 (Total Release Aerosol Used in GLP-385 & -518). GLP-396.

This study provided data to demonstrate the stability of test material X-4129-91 over the length of the application period involved in studies GLP-385 and -518, and also to show that active ingredients are present in the test material at expected levels. Three aerosol analyses were completed: one before, one during, and one after test material application. A GLC-FID analytical method was used to determine the amounts of all active ingredients except for esfenvalerate, which required separate analysis using chiral-HPLC. The GLC-FID sample preparation consisted of dilution with acetone and the addition of dibutyl phthalate (DBP) as an internal standard. The chiral-HPLC sample preparation consisted of the following steps to ensure removal of water: acetone dilution, evaporation using nitrogen gas, heptane dilution, and addition of anhydrous Na_2SO_4. The analytical results obtained initially, at 3.5 months, and at 10 months are summarized in Table 1.

Table 1. Storage Stability and Characterization Results for Test Material X-4129-91.

Active Ingredients	% Declared (w/w)	Initial Analysis		Analysis at 3.5 mos.		Analysis at 10 mos.	
		% Found	% (%Dec)[a]	% Found	% (%Dec)[a]	% Found	% (%Dec)[a]
MGK-264	0.50	0.523	105	0.490	98.0	0.493	98.6
ETOC	0.020	0.019	95.0	0.021	105	0.0205	102
PBO	0.50	0.527	105	0.526	105	0.499	99.8
Pyriproxyfen	0.60	0.643	107	0.642	107	0.589	98.2
Esfenvalerate	0.10	0.0985	98.5	0.096	96.0	0.0946	94.6

[a] %(% Dec) = [(% Found)/(% Declared)] * 100

Where PBO is piperonyl butoxide and ETOC is prallethrin.

These results indicate that test material X-4129-91 is correctly formulated and has acceptable stability over the length of the studies (approximately 10 months) at room temperature.

MRID 439269-03: Test Material Characterization and Stability of X-4128-91 (Contact Spray used in GLP-383 & 384). GLP-395.

This study provided data to demonstrate the stability of the active ingredients for nine months at room temperature in the emulsifiable concentrates (F-2457 & F-2482) used to formulate test material X-4128-91. This covers the time span needed to complete study GLP-383, the simulated warehouse scenario, and study GLP-384, the simulated food processing scenario. The data also demonstrate that the active ingredients are present at the expected levels.

The water-based contact spray formulation X-4128-91 is composed of 99.90% inerts, 0.05 % pyriproxyfen, and 0.05% esfenvalerate. It is prepared by diluting EVERCIDE® F-2457

concentrate and NYLAR® F-2482 concentrate in water. EVERCIDE® F-2457 contains 96.52% inerts and 3.48% esfenvalerate. NYLAR® F-2482 contains 90% inerts and 10% pyriproxyfen.

A sample of each batch of X-4128-91 was analyzed for pyriproxyfen and esfenvalerate content. The pyriproxyfen content was found to range from 80 - 102% of the intended amount of pyriproxyfen (0.05%); while the esfenvalerate content was found to range from 72 - 106% of the intended amount esfenvalerate (0.05%). In addition, the two concentrates used to formulate X-4128-91 were analyzed twice: once before and once after test material application. NYLAR® F-2482 was found to contain 102% of the declared amount of pyriproxyfen in the initial analysis and 103% after 9 months. EVERCIDE® F-2457 was found to contain 100% of the declared amount of esfenvalerate in the initial analysis and 101% after 9 months. The analytical results show that test material X-4128-91 is correctly formulated and that the concentrates have acceptable stability at room temperature to cover the length of studies (approximately 9 months).

Conclusions: The submitted studies adequately demonstrate the stability of the contact spray and the total release aerosol, designated as X-4128-91 and X-4129-91 for approximately 9 and 10 months, respectively. These time periods are adequate to cover the food handling trials. Moreover, the studies demonstrate that the test materials were properly formulated.

OPPTS GLN 860.1380: Storage Stability Data

NYLAR® (Pyriproxyfen) Residue Storage Stability. GLP-513. Included as Appendix M of GLP-518.

The petitioner concludes that the results obtained in this study are inadequate to provide a dependable picture of pyriproxyfen residue stability in frozen storage on food commodities. Therefore, this study was terminated and a new study (GLP-898) was planned to obtain data from five representative food commodities spiked at 1 ppm over a one year freezer storage period.

Conclusions: The petitioner has not demonstrated the stability of pyriproxyfen residues in/on foods held in frozen storage to cover the storage intervals in the submitted food handling studies. This deficiency must be corrected before RAB1 can arrive at a conclusion about appropriate tolerance levels.

OPPTS GLN 860.1460: Food Handling

MRID 439269-04: Nylar® Residue Study Regarding a Total Release Aerosol Used in a Simulated Feed or Food Processing Situation. GLP-518.

Two tables containing a total of six samples each of eight representative food commodities were placed along the sides of a 4800 ft^3 room (20 ft x 24 ft x 10 ft). The following foods were

selected: 5 lb bags of potatoes, 1.5 lb loaves of white bread, 5 lb bags of flour, head lettuce, 1 lb packages of extra lean hamburger meat, 10.25 oz bags of lemon drops, 1 lb cartons of butter, and 20 oz packages of banana cream pie. Half of the food on each table was covered with two layers of Kraft paper, while the other half was removed from its packaging and placed on clean paper plates with no covering material. The room was treated once with an aerosol spray placed in the center of the room using the recommended quantity of formulation of 1 oz per 1000 ft^3 (0.17 g ai/1000 ft^3, 1x). In a separate experiment, the treatment rate was 4 oz per 1000 ft^3 (0.68 g ai/1000 ft^3, 4x). In both cases, the rooms were closed and a period of two hours was allowed for aerosol application and exposure. Following this, the rooms were opened and allowed to ventilate for 30 minutes before sample collection.

The test material formulation was identified as X-4129-91, containing pyriproxyfen at 0.60 %w/w. This test material was analyzed by GLC-FID before, during, and after completion of all test applications. Analytical results verified the content of this formulation, and show no degradation of the active ingredients over a time period of approximately 9 months (see GLP-396). The pyriproxyfen residues on all food commodities except meat were quantitated using HPLC with UV detection at 280 nm. The meat pyriproxyfen residues were quantitated by GLC with NP detection. The sample treatment date was 7/31/92 and the last sample analysis date was 7/2/93 (for meat). Thus, the samples were in frozen storage for up to approximately 11 months.

Table 2. Pyriproxyfen residue levels (ppm) found in covered and uncovered foods when treated with Nylar® total release aerosol at the indicated treatment rates.

Food Analyzed	1x		4x	
	Covered	Uncovered	Covered	Uncovered
Bread	<0.10	1.03 1.12 1.29	<0.10	5.73 7.96 5.57
Butter	<0.10	0.21 0.14 0.54	<0.10	0.49 1.41 1.68
Candy	<0.10	0.34 0.21 0.48	<0.10	2.63 2.96 4.49
Flour	<0.10	<0.10	<0.10	<0.10
Lettuce	<0.10	0.47 0.66 0.28	<0.10	1.29 1.19 2.56

Food Analyzed	1x		4x	
	Covered	Uncovered	Covered	Uncovered
Meat	<0.10	0.37 0.26 0.28	<0.10	1.27 1.41 1.29
Pie	<0.10	0.22 0.26 0.24	<0.10	1.03 1.82 1.01
Potato	<0.10	0.18 0.15 0.15	<0.10	0.77 0.54 1.12

Recoveries of fortified commodities at 0.10, 0.20 and 0.30 ppm ranged from 88 – 118%. The results of this study show that pyriproxyfen residues on covered food samples are < 0.10 ppm, even when using an exaggerated rate of up to 4x. Uncovered food samples treated at a 1x rate generally showed pyriproxyfen residue levels less than 0.5 ppm (except for bread). The only anomalous data in this study was observed for uncovered flour samples, which showed pyriproxyfen residues <0.10 ppm for both the 1x and 4x treatment rates. The study author suspects that the flour containers (commercial paper bag) were not opened. Except for the flour samples, the 4x residues were generally 3 to 10 times higher than the 1x residues.

MRID 439269-05: Nylar® Residue Study Regarding a Contact Spray Used in a Simulated Warehouse Situation. GLP-383.

Two pallets containing six representative food commodities (twelve samples each) were placed in the middle of a room. The room was treated with the contact spray once a month for six months using the required amount of the formulation. Two different sample treatment rates were studied: the label rate of one gallon per 1000 ft^2 (1.9 g ai/1000 ft^2, 1x) and a second treatment, on a different set of samples, at four gallons per 1000 ft^2 (7.6 g ai/1000 ft^2, 4x). After spraying, the rooms were closed for an exposure time of 30 minutes. The rooms were then allowed to ventilate, remaining open during work hours between applications. Samples were collected following the exposure time.

The test material formulation was identified as X-4128-91, a contact spray containing 99.9 % inerts and 0.05% pyriproxyfen and 0.05% esfenvalerate. The test material is prepared immediately before application by diluting MGK F-2482 (10% pyriproxyfen and 90% inerts) and MGK-2457 (3.48% esfenvalerate and 96.52% inerts) with the appropriate quantity of water. Further details regarding the stability of this formulation were presented in MRID 439269-03. The following food commodities were selected for treatment and analysis in this study: Navy

beans in 10 and 25 lb bags, Spanish peanuts in a 110 lb bag, dried prunes in 12 oz plastic bags, granulated sugar in 5 lb paper bags, flour in 5 lb paper bags, and lemon drops in 10.25 oz bags. Beans and peanuts were repackaged into 2 lb cotton-cloth bags, while the other samples were left in their commercial packages.

All commodities except sugar were extracted with acetonitrile and put through a florisil column cleanup. Sugar was dissolved in water and extracted with petroleum ether. All residues, except meat, were quantitated by HPLC with UV detection at 280 nm. The meat pyriproxyfen residues were quantitated by GLC with NP detection. The final sample treatment date was 6/2/92 and the last sample analysis date was 5/11/93 (for candy). Thus, the samples were in frozen storage for up to approximately 11 months.

Prior to sample analysis, recoveries were determined for each food commodity at fortification levels from 0.1 to 0.6 ppm. The average recovery levels ranged from 87 - 118%, indicating satisfactory performance of the analytical methods.

No significant residues were found in peanuts, sugar, candy, flour, prunes, or bean samples in this study (residues less than the LOQ of 0.10 ppm). These results are consistent with expectation since the contact spray was applied as a layer on 18 inches of the wall, 18 inches on the floor of the room perimeter, and an 18 inch strip around the pallet perimeters. Because pyriproxyfen is non-volatile and the foods remained in their packages, there is little chance of obtaining residues under this application scenario.

MRID 439269-06: Nylar® Residue Study Regarding a Total Release Aerosol Used in a Simulated Warehouse Situation. GLP-385.

Two pallets containing six representative food commodities (twelve samples each) were place in the middle of a room. The room was treated with the aerosol spray once a month for six months (for a total of six applications) using the required amount of the formulation. Two different sample treatment rates were studied: the label rate of one ounce per 1000 ft^3 (0.17 g ai/1000 ft^3, 1x) and a second treatment, on a different set of samples, at four ounces per 1000 ft^3 (0.68 g ai/1000 ft^3, 4x). In both cases, the rooms were closed and a period of two hours was allowed for aerosol application and exposure. Following this, the rooms were opened and allowed to ventilate, remaining open during work hours between applications. Samples were collected and analyzed before and after the exposure time.

The test material formulation was identified as X-4129-91, an aerosol spray containing 98.28% inerts and five active ingredients as discussed in MRID 439269-02. The following food commodities were selected for treatment and analysis in this study: Navy beans in 10 and 25 lb bags, Spanish peanuts in a 110 lb bag, dried prunes in 12 oz plastic bags, granulated sugar in 5 lb paper bags, flour in 5 lb paper bags, and lemon drops in 10.25 oz bags. Beans and peanuts were repackaged into 2 lb cotton-cloth bags, while the other samples were left in their commercial packages.

All commodities except sugar were extracted with acetonitrile and put through a florisil column cleanup. Sugar was dissolved in water and extracted with petroleum ether. The pyriproxyfen residues in all commodities except meat were quantitated by HPLC with UV detection at 280 nm. The meat pyriproxyfen residues were quantitated by GLC with NP detection. The final sample treatment date was 6/3/92 and the last sample analysis date was 5/11/93 (for candy). Thus, the samples were in frozen storage for up to approximately 11 months.

Prior to sample analysis, recoveries were determined for each food commodity at fortification levels from 0.1 to 0.6 ppm. The recovery levels ranged from 90 - 120%, indicating satisfactory performance of the analytical methods.

No significant residues were found in sugar, candy, prunes, or bean samples treated at a 1x rate in this study (residues less than the limit of quantitation of 0.10 ppm). Four residues of 0.11 to 0.19 ppm were found in flour and peanut samples treated at a 4x rate.

MRID 439269-07: Nylar® Residue Study Regarding a Contact Spray Used in a Simulated Feed or Food Processing Situation. GLP-384.

A 4 ft X 8 ft table containing four samples each of eight representative food commodities was placed in the middle of a 1600 ft^3 room (10 ft X 16 ft X 10 ft). The following foods were selected: 5 lb bags of potatoes, 1.5 lb loaves of white bread, 5 lb bags of flour, head lettuce, 1 lb packages of extra lean hamburger meat, 10.25 oz bags of lemon drops, 1 lb cartons of butter, and 20 oz packages of banana cream pie. Half of the food on the table was covered with two layers of Kraft paper, while the other half was removed from its packaging and placed on clean paper plates with no covering material. The room was treated once with a contact spray using 1 gallon per 1000 ft^2 (1.9 g ai/1000 ft^2, 1x). In a second experiment in a separate 1600 ft^3 room, the treatment rate was 4 gallons per 1000 ft^2 (7.6 g ai/1000 ft^2, 4x), all other variable being the same.

The water-based contact spray formulation X-4128-91 is composed of 99.90% inerts, 0.05 % pyriproxyfen, and 0.05% esfenvalerate. It is prepared by diluting 59 mL of EVERCIDE® F-2457 concentrate and 21 mL of NYLAR® F-2482 concentrate in 3705 mL of water. EVERCIDE® F-2457 contains 96.52% inerts and 3.48% esfenvalerate. NYLAR® F-2482 contains 90% inerts and 10% pyriproxyfen. For both the 1x and 4x treatment rates, an 18 inch wide strip on the floor next to the wall and 18 inches up the wall from the floor were treated around the entire perimeter of the room. Following spray application, the rooms remained undisturbed (closed door) for one hour; then the samples were collected for analysis. The sample treatment date was 1/6/92 and the last sample analysis date was 7/2/93 (for meat). Thus, the samples were in frozen storage for up to approximately 18 months.

Prior to sample analysis, recoveries were determined for each food commodity at fortification levels from 0.1 to 0.6 ppm. The recovery levels ranged from 90 - 120%, indicating satisfactory performance of the analytical methods.

No significant residues were found in any of the food samples in this study (all residues were less than the limit of quantitation of 0.10 ppm).

Conclusions: Pending the receipt of adequate storage stability data to cover the maximum sample frozen storage period of approximately 18 months, these studies adequately demonstrate that no quantifiable pyriproxyfen residues (<0.10 ppm) are obtained when using a contact spray or total release aerosol as directed in simulated feed, food processing, or simulated warehouse situations. Accordingly, these studies indicate the appropriate tolerance level for pyriproxyfen residues in the food commodities in food handling establishments is 0.10 ppm. **A revised Section F reflecting this level is needed.**

Codex Harmonization

An International Residue Limits Status sheet is attached. There are no Codex, Canadian, or Mexican tolerances for residues of pyriproxyfen in/on foods; thus, harmonization is not an issue. Pyriproxyfen is scheduled as a new compound for JMPR review (both toxicology and chemistry) in 1999.

cc: RF, W.H. Donovan, O. Odiott
RDI: G. Kramer (23-SEP-1999), RAB1 Chemists (23-SEP-1999), M. Morrow (04-OCT-1999)
W. Donovan:CM#2:RM806T:703-305-7330:04-OCT-1999

INTERNATIONAL RESIDUE LIMIT STATUS

Chemical Name: 2-[1-methyl-2-(4-phenoxyphenoxy)ethoxy]pyridine	Common Name: pyriproxyfen	X☐ Proposed tolerance ☐ Reevaluated tolerance ☐ Other	Date: 17-SEP-1999

Codex Status (Maximum Residue Limits)	U. S. Tolerances
X☐ No Codex proposal step 6 or above ☐ No Codex proposal step 6 or above for the crops requested	Petition Number: 6H05748 DP Barcode: D258407 Other Identifier:
Residue definition (step 8/CXL): N/A	Reviewer/Branch: W. Donovan/RAB1
	Residue definition: pyriproxyfen only

Crop (s)	MRL (mg/kg)	Crop(s)	Tolerance (ppm)
		Foods in Food Handling Establishments	0.1 ppm

Limits for Canada	Limits for Mexico
X☐ No Limits ☐ No Limits for the crops requested	X☐ No Limits ☐ No Limits for the crops requested
Residue definition: N/A	Residue definition: N/A

Crop(s)	MRL (mg/kg)	Crop(s)	MRL (mg/kg)

Notes/Special Instructions: Codex. Scheduled as a new chemical in 1999 (tox and residue)
F. Ives 9/21/99

Rev. 10/08